

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS, INC.

180 Technology Parkway NW,
Peachtree Corners, GA 30092
404-636-8400

TC MINUTES COVER SHEET

TC/TG/TRG NO TC 5.2 DATE January 23, 2024

TC/TG/TRG TITLE Duct Design

DATE OF MEETING January 23rd, 2024, 3:30 PM CST LOCATION Chicago, Illinois (Hybrid)
[Click Here for "Join by Video" Instructions](#)

MEMBERS PRESENT	TERM TO	MEMBERS ABSENT	Y E A	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Cindy Bittel , Chair (Voting)	6/30/25			Dr. Jamie Fine, Duct Fitting Database Subcommittee Chair
Akshay Bhargava , Vice Chair (Voting)	6/30/25			John Constantinide, Handbook Subcommittee Chair
Christopher Ruch , Secretary/Webmaster (Voting)	6/30/25			Aakash Patel, Program Subcommittee Chair
Ralph Koerber , Code Interaction (Voting)	6/30/25			Kevin Gebke, Research
Dr. Stephen Idem , Endowment Subcommittee Chair (Voting)	6/30/25	Online		Randy Young, Membership
Vikram Murthy* (Voting)	6/30/25			

* Member Non-Quorum

CM = Corresponding Member

PCM = Provisional Corresponding Member

G = Guest

DISTRIBUTION

All Members of TC plus the following:	
TAC Section Head	Kevin Marple
TAC Chair	Craig Messmer
2021 Handbook Liaison (Fundamentals)	Satesh Iyengar
2020 Handbook Liaison (Systems & Equipment)	
Research Liaison	Douglas C Scott
Standards Liaison	William F Walter
Staff Liaison	Steven J Hammerling

DRAFT

**ASHRAE 2023 Winter Conference
ASHRAE TC 5.2 Duct Design
FULL COMMITTEE MEETING**

AGENDA

**Tuesday, January 23, 2024
Time: 3:30 PM – 6:00 PM CST
Location: McCormick Place West, W176A (1)
Chicago, Illinois, USA
and
Virtual Meeting**

Virtual meeting access information is available at the TC 5.2 website, located at <https://tc0502.ashraetcs.org/>.

- 1) Call to Order 3:49 PM CST**
- 2) ASHRAE Code of Ethics Commitment – Cindy Bittel**
“In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and we shall avoid all real or perceived conflicts of interests.”
 - a) ASHRAE Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>
 - b) ASHRAE Core Values: <https://www.ashrae.org/about/ashrae-s-core-values>
- 3) Introductions and Attendance**
 - a) Recognize attendees – **All attendees recognized bot in person and online.**
 - b) Quorum reached? **6** out of 6 voting members attending (Requires 4 present)
 - c) Corrections/additions and approve agenda.
- 4) 2023 June Interim Meeting Minutes**
 - a) The DRAFT minutes have been posted to on the [TC 5.2 Webpage](#) and [Basecamp](#) in the Files > Minutes folder for Voting Members to review. (*TC0502 Tampa Full Committee Minutes 20230627*)
 - b) Approval of Minutes
 - i) **Chris Approved**
 - ii) **Ralph Seconds**
 - iii) **No Objections, No abstentions 3:56 PM**
 - iv) **Approved**
- 5) Reminders – Cindy Bittel 3:58**
 - a) ASHRAE Mission: To serve humanity by advancing the arts and science of heating, ventilation, air conditioning, refrigeration, and their allied fields.
 - b) ASHRAE Vision: A healthy and sustainable built environmental for all.
 - c) TC 5.2 Scope: TC 5.2 is concerned with the design, characteristics and construction of all types of ductwork for the handling of air and other gases, but does not include chimneys.
 - d) Virtual Meeting Protocols

- e) TC 5.2 MBOs are reflected by our Strategic Plan and referenced on the agenda with asterisk symbols (**)

6) Section 5 Report – Kevin Marple 4:35

- a) Update
 - i) MOP is changing but only in name. Same manual but it will now be called a “Reference Manual”.
 - ii) New Version of Roster is coming.
 - 1. PCM starts the day you signed up. If you want to be a CM, you need to contact Cindy Bittel and let her know. PCM should log onto their account and determine role off date. Roster update takes place July 1 (next year)
 - iii) Asked about how many attendees participate in regional chapter meetings. Asked that 5.2. member start participating.
 - iv) Asked attendees to consider nominating people to technical awards. Attendees should let Cindy Bittel know if they have a potential candidate.
- b) TC Activity Form is due January 23rd, 2024.

7) Herman and Dorothy Behls Endowment – Dr. Stephen Idem 4:03

- a) Travel Scholarship Fall
 - i) Introduce our scholarship winner Mostafa Saad
 - 1. 15 applicants applied.
 - a. Committee unanimously selected Mostafa Saad
 - 2. ASHRAE certificate awarded to Mostafa Saad by Cindy Bittel
- b) Update to HVAC Designer Certification Award
 - i) No applications yet.
 - ii) Will set new date of March 31st.

8) Subcommittee Reports

- a) **Membership – Randy Young 4:05**
 - i) Recognize new Provisional Corresponding Members (PCMs) since June 2023.
 - a) 8 new members since last meeting
 - ii) Outreach to create outreach plan to meet Strategic Plan goal to recruit at least two (2) TC members from the following industry segments**:
 - a) Duct Design Engineers
 - b) Academics and Researchers Focused on Duct Design
 - c) Code Authorities/Authorities Having Jurisdiction (*Additional recruitment needed*)
 - d) Building Owners/Managers and Owner Authorized Representatives
 - e) General Contractors, Mechanical/Sheet Metal (including SMACNA) (*Additional recruitment needed*)
 - f) Contractors, and Associated Technicians
 - iii) Ask for volunteer to shadow Membership chair or become the next membership chair when Randy Young rolls off.
 - 1. Randy Young plans to roll off after the Annual membership meeting
 - 2. Jeremy Zeedyk accepted role as membership chair.
- b) **Handbook – John Constantinide 4:08**

- i) Update - Handbook updates have been noted. Subcommittee will incorporate the revisions. John Constantinide will then submit to Cindy Bittel for a vote.
 - ii) John will be rolling off but has people to follow.
 - iii) Fundamentals Handbook, Chapter 21, Duct Design is being reviewed. The draft was posted on Basecamp on November 5, 2023, with distribution to the TC seeking comments at I-P and SI Ch21 Handbook.docx - ASHRAE TC 5.2 for ASHRAE. All Chapter revisions for the first round of revisions were due on December 15, 2023, as identified in the notice.
 - iv) Comment review discussions are available for viewing on Basecamp at this folder: 2026 Revision - ASHRAE TC 5.2 for ASHRAE.
- c) **Programs** – Aakash Patel 4:10
- i) Status Report **New to position**
 - ii) Aim for Strategic Plan goal of having at least one (1) ASHRAE Chapter seminar every six (6) months addressing a topic within the scope of TC 5.2.
 - a) Action Items Identified in Tampa 2023
 - i. **Action Item** – John Constantinide to reach out to CTTC for having RVCs to chapter cttc chairs to schedule chapter presentation/meeting about DFDB. Also, create a Tech hour for Duct Fitting Data base.
 - 1. This item was completed with no response. John Constantinide will follow-up. Recommend linking the DFDB to decarbonization. A program about the DFDB resulting in energy efficiency and decarbonization would interest other chapters to get involved.
 - 2. Craig Wray – Concerned about linking DFDB to decarbonization unless we have the data to back up that claim. This would be an issue rather CEC or CTTC.
 - 3. Jamie Fine – Can provide tutorial of DFDB and resulting energy consumption reductions. Offering to assist but would like to have separate meeting to discuss.
 - 4. Vikram – Offered to assist and recommended we put together and decide at the next meeting to move through CEC or CCTC. Could look at it from an IAQ perspective.
 - 5. Bob Reid – Local chapter chooses speakers at meeting. Local presentations are usually 45 minutes or less.
 - 6. Akshay Bhargava – Every year his local chapter does cover duct design. Recommends we create presentation.
 - 7. Aakash Patel will start working on a presentation.
 - 8. Mark Modera – Is there considerations discuss DFDB along with other topics.

There was discussion on the intent of the presentation and if it should be on DFDB alone or linked to decarbonization/IAQ/Energy Efficiency.

Programs Committee will have a separate meeting to discuss.

- ii. **Action Item** – Aakash Patel (Program Chair) to assemble presentation for both DFDB and DDG. To assist.
 - 1. **Looking for volunteers.**

- d) **Duct Design Guide (DDG)** – Larry Smith 4:45
 - i) Create an education program utilizing content from the Duct Design Guide. **** – Stalled due to lack of volunteers. Please contact Larry Smith if you are interested.**
 - ii) Create a plan to publicize the Duct Design Guide education program to ASHRAE and non-ASHRAE members. **** – Stalled due to lack of volunteers. Please contact Larry Smith if you are interested.**
 - iii) Status of SI Version of DDG – **Stalled due to lack of volunteers. Please contact Larry Smith if you are interested.**
 - iv) **Update – Duct Design Guide is available in Bookstore.**

- e) **Duct Fitting Database** (DFDB)** – Jamie Fine
 - i) Subcommittee Report
 - a) **No major reports. Minor issues (bugs) are taken care of as they come in.**
 - ii) Ongoing Maintenance and Updates
 - a) Action Item Identified in Tampa 2023
 - i. **Action Item** – Bob and Kevin Gebke to review previous/historical CFD research study (RP1493, 1682) and provide summary on Basecamp. Dr. Fine will follow-up with TC 4.10 about CFD modelling. Dr. Iden, Steve Rogers, Kevin Gebke, Bob Reid, and Dr. Fine will define scope for new project and develop and RTAR. **Ongoing Action Item. Both reports have been shared to Jamie Fine by Kevin Gebke and Bob Reid. Jamie Fine has determined that the task can be done from a technical perspective. Jamie Fine plans to research more and complete the task. The reports are also shared with Steve Rogers.**
 - iii) Create a user guide assisting practitioners with utilizing the Duct Fitting Database, with a timeline for publication of the user guide. ******
 - a) **Update**

- f) **Research – Kevin Gebke 4:41**
 - i) Status of RTAR 1941
 - a) **They do have comments but need to make a work statement.**
 - ii) Bob Reid – RTAR Proposal: “Duct Take-offs, Taps”
 - a) **Update – Kevin Gebke will work with Randy Young, Bob Reid to write the RTAR.**
 - iii) Brandon Cudequest – RP-1919, The effects of duct size and aspect ratio on flow noise in elbows; Responsible Committee: TC 2.6 (Sound and Vibration); Co-Sponsors: TC 5.2 (Duct Design)

- a) Update – Kevin Gebke believes this was awarded. Please reach out to Kevin Gebke if anyone is interested. Randy Young to set up a meeting
 - iv) Jeremy Zeedyk – Would like to write an RTAR for open Plenums versus Return Plenums. Kevin will work with Jeremy Zeedyk and Chris Ruch. Chris Ruch to set up a meeting.
 - v) Cindy Bittel – There is a push for research projects.
 - g) **Codes & Standards Interaction** - Ralph Koerber 4:47
 - i) **See Addendum A**
 - ii) **SSPC 90.1 Liaison** – Ian Cavanaugh Ian did not attend.
 - iii) Cindy Bittel asked for any recommendations for liaisons. None Heard.
 - h) **Webmaster** – Christopher Ruch 5:05
 - i) TC 5.2 Website: <https://TC0502.ashraetcs.org/>
 - ii) Talk to Chris about joining TC 5.2 Basecamp.
 - iii) Cindy Bittel Recommended
 - a) Chris Ruch to update the documents section.
 - i. Meeting Minutes need to get added to the documents.
 - b) Chris Ruch will go through and clean out Basecamp in comparison to Membership Roster
 - i) **Historian** - Bob Reid 4:55
 - i) Status on Herman Behls Library.
 - a) Hard Copy library that can be checked out by contacting Bob Reid. Once a request id received, Bob will mail that out to them.
 - b) 8 copies of the documents used to create the Duct Fitting Database. Bob Reid asked that Cindy Bittel request that ASHRAE officially request these documents from McGill Airflow LLC
 - i. Bob Reid will provide John Constantinide a list of the documents to be requested. John Constantinide will make a request of the SMACNA president to make the request of McGill Airflow LLC.
 - c) Bob Reid will put a copy of the library document titles on Basecamp.
 - d) Any documents that would like to be added can be submitted to Bob Reid.
 - j) **YEA** – Ian Cavanaugh 5:07
 - i) Update – No new events. Can provide an update for the Annual Conference but unable to for the Winter Conference due to limited bandwidth.
- 9) **Deadlines 5:08**
 - a) Research deadlines.
 - i) The next submission date for RTARs, PTARs and WSs is March 15, 2024.
 - ii) The standing RAC submission dates for new and revised RTARs and WSs are as follows each year:
 - iii) March 15 – RAC Spring meeting consideration in April
 - iv) May 15 – RAC Annual meeting consideration in June
 - v) August 15 – RAC Fall meeting consideration in Sept. or Oct.
 - vi) December 15 – RAC Winter meeting consideration in January

10) Notifications

- a) ASHRAE strategic plan
 - i) Review the plan.
 - ii) Determine where members can make input.
 - 1. There are 3 goals, and 4 initiatives to respond to those goals and objectives.
 - a. Initiative 1: Resiliency and Decarbonization in Buildings
 - b. Initiative 2: Indoor Environmental Quality
 - c. Initiative 3: Organizational Streamlining
 - d. Initiative 4: Improve Chapter Engagement, Capacity and Support
 - 2. Ask for volunteers to provide input to the link.
 - a. <https://strategicplanfeedback.ashrae.org>
- iii) Task Force for Building Decarbonization Update
 - 1. Objective: Provide a plan for integrating building decarbonization activities into the ASHRAE Structure
 - 2. Successes:
 - a. Worked with TAC to improve communication and coordination with functional groups.
 - b. Worked with the White House to define “Zero-Emissions Building.”
 - c. Published Building Performance Standards Technical Resource with US DoE
 - d. Additional decarbonization guides currently under development.
 - e. Coordinate work with standards project committees to address GHG emissions.
 - f. Assist the Planning Committee to add building decarbonization goal to Strategic Plan
 - 3. Proposing a “Center of Excellence for Building Decarbonization” that would report to the ASHRAE board of directors, with its own full structure.

11) Action Items

TC 5.2 Duct Design Action Items			
Number	Description	Assigned to	Status
1	Programs - John Constantinide to reach out to CTTC for having RVCs to chapter cttc chairs to schedule chapter presentation/meeting about DFDB. Also, create a Tech hour for Duct Fitting Data base	John Constantinide	Assigned Tampa 2023
2	Programs - Aakash Patel (Program Chair) to assemble presentation for both DFDB and DDG. To assist	Aakash Patel	Assigned Tampa 2023
3	Duct Fitting Database (DFDB) - Bob and Kevin Gebke to review previous/historical CFD research study (RP1493, 1682) and provide summary on Basecamp. Dr. Fine will follow-up with TC 4.10 about CFD modelling. Dr. Iden, Steve Rogers, Kevin Gebke, Bob Reid, and Dr. Fine will define scope for new project and develop and RTAR.	Bob and Kevin Gebke	Assigned Tampa 2023

12) New Business

- a) Cindy Bittel - Would like to put together Membership Engagement Committee. At least 5 members would reach out to gather professional information and TC 5.2 expectations of TC 5.2. Committee would report back on progress at Annual Conference. Please reach out to Cindy by Friday.

In history, TC 5.2 has had many successes on work being done and then published or presented, and we are interested in continuing those achievements moving forward. I'd like to assign an ad-hoc committee of at least 5 members to evaluate the interests of current members, and report back as to how we can meet their expectations and interests with ASHRAE and specifically our TC. I'd like for the committee to report back on their progress and any preliminary recommendations at the summer meeting. If you're interested in becoming chair of the committee, or vice chair, please send me a quick email bittelcindy@gmail.com by Friday this week, and same if you're interested in being a member of the committee as well. We can call this committee the "Membership Engagement Committee."

13) Adjournment 5:27 PM CST

- a) Motion to Adjourn – Randy Young
 b) Second – Ralph Kober

Information about upcoming ASHRAE Conference Meetings is available at <https://www.ashrae.org/conferences/ashrae-conferences>.

Online Attendees

Chris Van Rite

Abdur-Rahman Quadri – And In-Person

Steve Iidem

Craig Wray

Ed Janowick – And In-Person

Kevin Gebeke – And In-Person

Akshay Bhargava – And In-Person

Krishman Viswanath – And In-Person

Addendum A

1. Underwriters Laboratories
 - UL181 Standards
 - UL181, UL181A, & UL181B
 - UL181B proposal for two-week review and comment (10/6 to 10/20) - Consistency for Temperature Aging test requirements across Part I, Part II, and Part III (212°F/60days).
 - UL181B TC vote to approve proposal has been extended to 1/30/24 to allow members to review more details as to why UL set a different temperature requirement for mastic than for tape and plastic straps.
 - UL USA / UL Canada - harmonization survey to members discussing future potential harmonization of US and Canada versions.
2. NFPA 90A & 90B Standards
 - 2024 Edition
 - 2024 edition is complete and published.
 - 90A standard was reorganized bringing Air Ducts & Air Connector requirements all together in a separate Chapter 6.
 - 90B had no substantive proposed changes or TC decisions affecting ducts.
 - 2027 Edition – **Proposal process will start in June this year.**
 - NFPA is now accepting proposals for 2027 edition.
 - Proposal closing date is June 4, 2024.
 - Technical Committee meets to review proposals with First Draft Report posting date of March 25, 2025.
 - Public comments to First Draft accepted up to June 3, 2025.
 - Technical Committee meets to review comments with Second Draft Report posting date of March 3, 2026.
 - NITMAM closing date of March 31, 2026.
 - NITMAM posting date of May 12, 2026.
3. International Code Council
 - 2024 Edition
 - IPC & IMC
 - Released 8/31/2023.
 - IECC & IRC
 - Expecting release in Q1 2024
 - Appeals process has been extended to 1/30/24 to answer substantial AHRI Appeal.
 - Meeting scheduled for 1/26/24 to review the appeal.
 - New format includes alignment of the digital, PDF, and printed versions, streamlined lists, modernized fonts, single-line text, revised content grouping strategy, and inclusion of QR codes in the margins to identify the changes.
 - 2027 Edition Timeline

- Group A (IBC-E, IBC-FS, IFC, IFGC, IMC, IPC, IPSDC, IRC-M, IRC-P, ISPSC, IWUIC)
 - Open for proposals - 10/16/23 to 1/8/24
 - Posting of proposed changes - 2/26/24
 - Committee Action Hearing #1 - 4/7 to 4/16/24
 - Posting of CAH #1 results - 5/16/24
 - Open for comments to CAH #1 action - 5/16/24 to 7/8/24
 - Posting of comments to CAH #1 - 9/5/24
 - Committee Action Hearing #2 - 10/23 to 10/31/24
 - Posting of CAH #2 results - 12/2/24
 - Open for comments to CAH #2 action - 1/20/25 to 3/14/25
 - Posting of public comments to CAH #2 - 3/5/26
 - Public comment hearings - 4/19 to 4/28/26
 - Group B (Admin, IBC-G, IBC-S, IEBC, IgCC (Ch. 1 & App M), IPMC, IRC-B, IZC)
 - Open for proposals - 10/15/24 to 1/10/25
 - Posting of proposed changes - 3/13/25
 - Committee Action Hearing #1 - 4/27 to 5/6/25
 - Posting of CAH #1 - 6/3/25
 - Open for comments to CAH #1 - 6/3/25 to 7/8/25
 - Posting of comments to CAH #1 - 8/27/25
 - Committee Action Hearing #2 - 10/8 to 10/16/25
 - Posting of CAH #2 - 11/13/25
 - Open for comments to CAH #2 - 11/13/25 to 1/5/26
 - Post public comments - 3/5/26
 - Public comment hearings - 4/19 to 4/28/26
 - Energy Code (IECC & IRC-E)
 - The IECC and IRC Chapter 11 will be revised by two Development Committees (Residential and Commercial) and applicable sub-committees using the Standards Development process. Committee members will be appointed solely by the ICC Board of Directors.
4. IAPMO - UMC **and** UPC Revision Cycle
- 2024 is complete and printed.
 - 2027 Cycle is ongoing.
 - Selection of TC members and initial TC meeting held on 4/19/23.
 - Call for proposals - 7/3/23 to 1/12/24.
 - Chapter 6 Working Group reviewed proposals from staff and developed 21 proposals to present to the TC along with public proposals received. These proposals were designed to clean up issues without making substantive changes to the UMC.
 - Distribution of proposals to TC - 4/1/24
 - Next TC meeting - 5/9 to 5/10/24
 - Report on proposals (ROP) - 8/9/24.
5. State Building Codes
- Georgia - Provision for residential R-Value reduction for flexible duct from 9/1/22 to 6/30/23. It does not appear that the provision was extended beyond the end date.
 - North Carolina - Duct R-Value requirement reduction to R-4.2 for two years in response to duct availability issues. This should expire on March 17, 2024.
6. ACCA revising Manual D – in process with Task Group meeting regularly and completing the draft and presenting it to a select committee for review.